

This document gives pertinent information concerning the reissuance of the VPDES Permit listed below. This permit is being processed as a Minor, Municipal permit. The discharge results from the operation of a 0.0047 MGD wastewater treatment plant. This permit action consists of updating the proposed effluent limits to reflect the current Virginia WQS (effective January 6, 2011) and updating permit language as appropriate. The effluent limitations and special conditions contained in this permit will maintain the Water Quality Standards of 9VAC25-260 *et seq.*

1. Facility Name and Mailing Address: Unionville Elementary School Wastewater Treatment Plant
200 Dailey Drive
Orange, VA 22960

SIC Code : 4952 WWTP

Facility Location: 10285 Zachary Taylor Highway
Unionville, VA 22567
County: Orange

Facility Contact Name: Doug Arnold
Telephone Number: 540-661-4550

Facility E-mail Address: darnold@ocss-va.org
2. Permit No.: VA0060330

Expiration Date of previous permit: September 28, 2014

Other VPDES Permits associated with this facility: None

Other Permits associated with this facility: None

E2/E3/E4 Status: Not Applicable
3. Owner Name: Orange County School Board

Owner Contact/Title: Dr. Brenda Tanner/Superintendent
Telephone Number: 540-661-4450

Owner E-mail Address: btanner@ocss-va.org
4. Application Complete Date: December 18, 2013

Permit Drafted By: Joan C. Crowther/Douglas Frasier
Date Drafted: 2/17/15

Draft Permit Reviewed By: Anna Westernik
Date Reviewed: 2/20/15

Draft Permit Reviewed By: Alison Thompson
Date Reviewed: 2/27/15

Public Comment Period : Start Date: 3/27/15
End Date: 4/27/15
5. Receiving Waters Information: See Attachment 1 for the Flow Frequency Determination

Receiving Stream Name : Riga Run, UT
Stream Code: 8-XAL

Drainage Area at Outfall: 0.234 sq.mi.
River Mile: 0.83

Stream Basin: York River
Subbasin: None

Section: 3
Stream Class: III

Special Standards: None
Waterbody ID: VAN-F07

7Q10 Low Flow: 0.0 MGD
7Q10 High Flow: 0.0 MGD

1Q10 Low Flow: 0.0 MGD
1Q10 High Flow: 0.0 MGD

30Q10 Low Flow: 0.0 MGD
30Q10 High Flow: 0.0 MGD

Harmonic Mean Flow: 0.0 MGD
30Q5 Flow: 0.0 MGD

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

☒ State Water Control Law
☒ Clean Water Act
☒ VPDES Permit Regulation
☒ EPA NPDES Regulation

☒ EPA Guidelines
☒ Water Quality Standards
☐ Other

7. Licensed Operator Requirements: Class IV

8. Reliability Class: Class II

9. Permit Characterization:

<input type="checkbox"/> Private	<input type="checkbox"/> Effluent Limited	<input type="checkbox"/> Possible Interstate Effect
<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Whole Effluent Toxicity Program Required	<input type="checkbox"/> Interim Limits in Permit
<input checked="" type="checkbox"/> POTW	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input checked="" type="checkbox"/> TMDL	<input checked="" type="checkbox"/> e-DMR Participant	

10. Wastewater Sources and Treatment Description:

The wastewater treatment plant consists of a grease trap, 1- 6,000 septic tank, a bar screen, a 2,000 gallon extended aeration basin, secondary clarifier, tablet chlorination, tablet dechlorination, and diffuse post aeration.

The facility schematic/diagram is below.

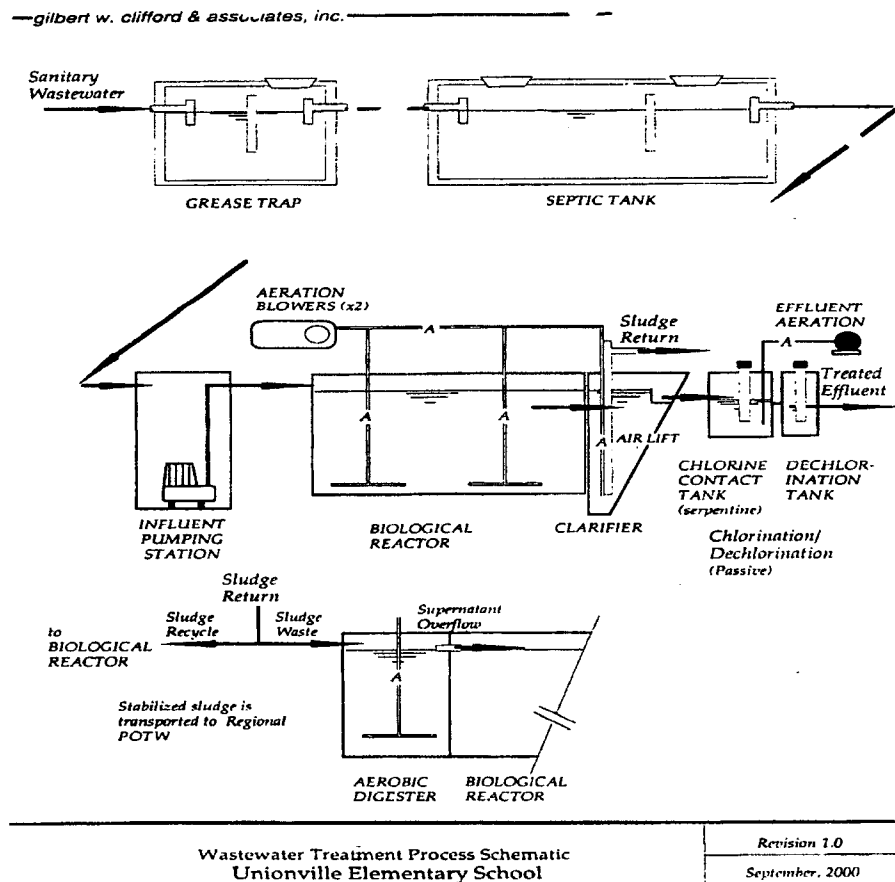
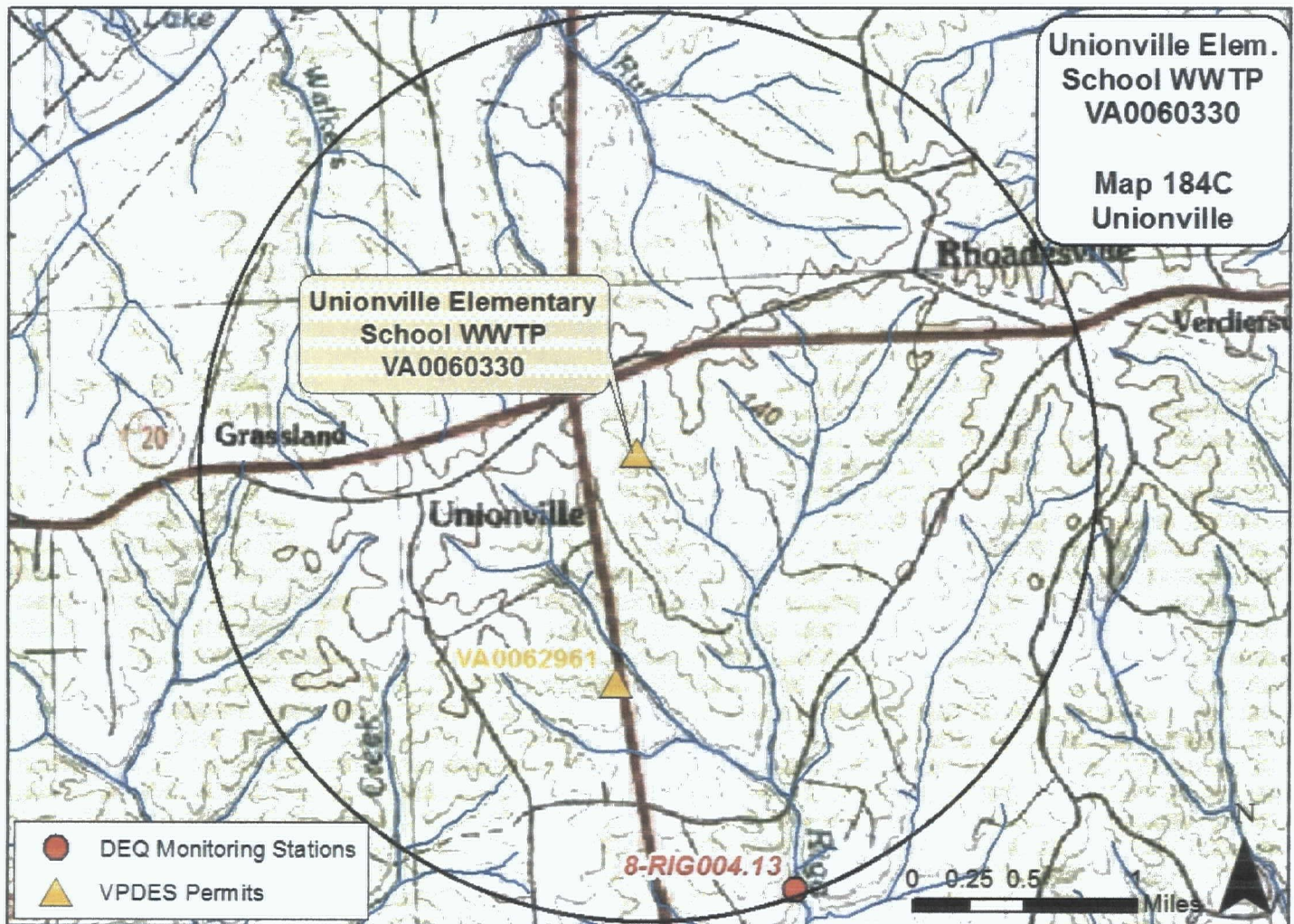


TABLE 1 – Outfall Description

Outfall Number	Discharge Sources	Treatment	Design Flow(s)	Outfall Latitude and Longitude
001	Domestic Wastewater	See Item 10 above.	0.0047 MGD	38° 15' 43.78" N 77° 57' 5.18" W

USGS Topographic Map: Unionville, DEQ Map # 184C

**11. Sludge Treatment and Disposal Methods:**

The aerobic digested sludge is pumped and hauled by an independent contractor to the Massaponax Wastewater Treatment Plant (VA0025658) in Spotsylvania County, Virginia for disposal.

12. Discharges, Intakes, Monitoring Stations, Other Items within a 2-mile Radius of the Discharge

TABLE 2	
Identification Number	Description of discharges, DEQ Ambient Water Quality Monitoring in the Vicinity of the Unionville Elementary School's Discharge
VA0062961	Lightfoot Elementary School – Discharges into an unnamed tributary to Riga Run (38° 14' 51" / 77° 57' 12")
8-RIG004.13	Riga Run, Probabilistic Monitoring Station for 2011, located ~0.4 rivermiles downstream from RT 650.

13. Material Storage:

TABLE 3 - Material Storage		
Materials Description	Volume Stored	Spill/Stormwater Prevention Measures
Chlorine Tablets	2 – 5 gallon buckets	Stored in covered container in locked storage building
Dechlorination Tablets	2 – 5 gallon buckets	Stored in covered container in locked storage building.

14. Site Inspection:

Performed by Terry Nelson, DEQ Water Inspector on April 14, 2009 (See Attachment 2)

15. Receiving Stream Water Quality and Water Quality Standards:**a. Ambient Water Quality Data**

This facility discharges into an unnamed tributary to Riga Run. This unnamed tributary has not been monitored or assessed by DEQ. There is a DEQ monitoring station (8-RIG004.52) located on Riga Run, approximately 1.8 miles downstream of Outfall 001 at the Route 650 bridge crossing. However, the majority of the samples were collected at this station in the 1999-2000 timeframe, with the last station visit in 2006. The water quality summary for Riga Run is presented at the end of this section. The nearest downstream DEQ ambient monitoring station with recent data is 8-TRY004.98 on Terrys Run, located at the Route 629 bridge crossing, approximately 6.8 miles downstream of Outfall 001. The following is the water quality summary for this segment of Terrys Run, as taken from the 2012 Integrated Report:

DEQ monitoring station located in this segment of Terrys Run is ambient monitoring station 8-TRY004.98, at Route 629.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. Additionally, excursions above the fish tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded in tissue from one species (bluegill sunfish) of fish sampled in 2006 (two total excursions) at monitoring station 8-TRY004.98, noted by an observed effect.

There was no new E. coli monitoring for the 2012 assessment. The bacteria impairment listed in the 2010 assessment will be carried forward. A bacteria TMDL for the Terrys Run watershed has been completed and approved. The aquatic life and wildlife uses are considered fully supporting.

The following is the water quality summary for Riga Run, as taken from the 2012 Integrated Report:

DEQ monitoring stations located in this segment of Riga Run are ambient monitoring station 8-RIG004.52, at Route 650 and freshwater probabilistic monitoring station 8-RIG003.01, 1.5 rivermiles downstream of Route 650.

The aquatic life, wildlife, and fish consumption uses are considered fully supporting. The recreation use was not assessed.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

TABLE 4

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
<i>Impairment Information in the 2012 Integrated Report</i>							
Terrys Run	Recreation	<i>E. coli</i>	6.5 miles	York River Basin (Lake Anna Tribs) Bacteria 11/04/05	8.21E+09 cfu/year <i>E. coli</i>	126 cfu/100ml <i>E. coli</i> --- 0.0047 MGD	N/A
	Fish Consumption	PCBs		N/A	---	---	2018

In support for the PCB impairment listed for Terrys Run and downstream in Lake Anna, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal facility. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility (<0.1 MGD) and is not expected to be a source of PCBs. Based upon this information, this facility will not be requested to monitor for low-level PCBs.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban storm water, onsite/septic agriculture, air deposition]. Fact Sheet Section 17.e provides additional information on specific nutrient monitoring for this facility to implement the provisions of the Chesapeake Bay TMDL.

The planning statement is found in Attachment 3.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections. The receiving stream Riga Run, UT is located within Section 3 of the York River Basin, and classified as a Class III water.

At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).

The Freshwater Water Quality/Wasteload Allocation Analysis (Attachment 4) details other water quality criteria applicable to the receiving stream.

Some Water Quality Criteria are dependent on the temperature and pH and Total Hardness of the stream and final effluent. The stream and final effluent values used as part of Attachment 5 are as follows:

pH and Temperature for Ammonia Criteria:

The fresh water, aquatic life Water Quality Criteria for Ammonia are dependent on the instream temperature and pH. Since the effluent may have an impact on the instream values, the temperature and pH values of the effluent must also be considered when determining the ammonia criteria for the receiving stream. The 90th percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream.

The 7Q10, 1Q10, and 30Q10 of the receiving stream are 0.0 MGD. In cases such as this, effluent pH and temperature data may be used to establish the ammonia water quality criteria. Since the effluent pH and temperature data that was used to determine the current ammonia effluent limitations (established in the 1999 permit reissuance process) was not available, staff has re-evaluated the effluent data for the period of August 2010 through December 2014 (Attachment 5). The 90th percentile for pH and temperature was 7.9 SU and 21°C, respectively. These 90th percentiles were used in the Freshwater Water Quality/Wasteload Allocation Analysis (Attachment 4).

Total Hardness for Hardness-Dependent Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's total hardness (expressed as mg/L calcium carbonate) as well as the total hardness of the final effluent.

There is no hardness data for this facility or receiving stream. Staff guidance suggests using a default hardness value of 50 mg/L CaCO₃ for streams east of the Blue Ridge.

Bacteria Criteria:

The Virginia Water Quality Standards at 9VAC25-260-170A state that the following criteria shall apply to protect primary recreational uses in surface waters:

E. coli bacteria per 100 ml of water shall not exceed a monthly geometric mean of 126 n/100 ml for a minimum of four weekly samples taken during any calendar month.

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia. The receiving stream, Riga Run, UT, is located within Section 3 of the York River Basin. There are no special standards designed for this section in the Water Quality Standards.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The receiving stream has been classified as Tier 1 based on an evaluation that the critical flows for the stream are zero and at times the stream flow is comprised of only effluent. It is staff's best professional judgment that such streams are Tier 1. Permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening, Wasteload Allocation, and Effluent Limitation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

Next, the appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent

limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening:

Effluent data obtained from the monthly DMRs submitted between July 2009 and August 2014 has been reviewed and determined to be suitable for evaluation. The following exceedances were noted:

Ammonia as N – monthly average and weekly max: Dec 2009; Jan 2010; Sept 2011; Sept 2012; Dec 2012; Jan 2014 and Feb 2014;

Ammonia as N – weekly max: Jan 2011 and May 2011;

E.coli – Jan 2010; April 2012; and Feb 2014; and

BOD₅ – weekly max: Dec 2011.

The following pollutants require a wasteload allocation analysis: total residual chlorine and Ammonia as N.

b. Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{Co [Qe + (f)(Qs)] - [(Cs)(f)(Qs)]}{Qe}$$

Where:	WLA	= Wasteload allocation
	Co	= In-stream water quality criteria
	Qe	= Design flow
	Qs	= Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	f	= Decimal fraction of critical flow
	Cs	= Mean background concentration of parameter in the receiving stream.

The water segment receiving the discharge via Outfall 001 is considered to have a 7Q10, 1Q10, and 30Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the Co.

c. Effluent Limitations Toxic Pollutants, Outfall 001 –

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits.

The VPDES Permit Regulation at 9VAC25-31-230.D requires that monthly and weekly average limitations be imposed for continuous discharges from POTWs and monthly average and daily maximum limitations be imposed for all other continuous non-POTW discharges.

1) Ammonia as N:

During the 1999 permit reissuance, the discharge for this facility was reclassified as intermittent, as the facility does not regularly discharge; therefore, the ammonia wasteload allocation and effluent limitation were calculated using the acute criteria only. However, the pH and temperature documentation could not be found. The ammonia permit limitations based on this evaluation indicated that water quality standards would be met at 6.6 mg/L (Attachment 6).

Staff reevaluated effluent pH and temperature values using the daily effluent values submitted with the monthly DMRs from August 2010 through December 2014. Using the pH (7.9 SU) and temperature (21°C) 90th percentiles, ammonia effluent limitation were calculated and resulted in an average monthly concentration and weekly maximum concentration of 10.1 mg/L. Ammonia calculation can be found in Attachment 7. The pH and temperature data can be found in Attachment 5.

Although the facility has had numerous Ammonia as N exceedances during the last permit term, the existing ammonia limitations are proposed to be carried forward in this permit reissuance. The reason for carrying forward these Ammonia as N effluent limitations for this permit reissuance is because the Environmental Protection Agency (EPA) finalized new, more stringent ammonia criteria in August 2013; possibly resulting in significant reductions in ammonia effluent limitations. It is staff's best professional judgment that incorporation of these criteria into the Virginia Water Quality Standards is forthcoming. It is staff's best professional judgment that it would not be prudent to relax the Ammonia effluent limitations for this reissuance and then reduce the effluent limitations in the next permit reissuance.

DEQ guidance suggests using a sole data point of 9.0 mg/L for discharges containing domestic sewage to ensure the evaluation adequately addresses the potential for ammonia to be present in the discharge containing domestic sewage.

2) Total Residual Chlorine (TRC):

Chlorine is used for disinfection and is potentially in the discharge. Staff calculated WLAs for TRC using current critical flows and the mixing allowance. In accordance with current DEQ guidance, staff used a default data point of 0.2 mg/L and the calculated WLAs to derive limits. A monthly average of 0.008 mg/L and a weekly average limit of 0.010 mg/L are proposed for this discharge (see Attachment 8).

3) Metals/Organics:

No data was available to review; therefore, no limits are needed.

d. Effluent Limitations and Monitoring, Outfall 001 – Conventional and Non-Conventional Pollutants

No changes to dissolved oxygen (D.O.), biochemical oxygen demand-5 day (BOD₅), total suspended solids (TSS), and pH limitations are proposed.

Dissolved Oxygen and BOD₅ were based on a stream model (undated). Since the receiving stream is intermittent and the 7Q10 flow is zero, the stream model was run to maintain a D.O. of 5 mg/L. The stream model shows that once the unnamed tributary meets the next unnamed tributary approximately 0.83 river miles downstream, a D. O. of at least 5 mg/L is maintain until the stream flow reaches Riga Run with an effluent limit of 24 mg/L for BOD₅ and a D.O. of 6 mg/L. See Attachment 9 for the stream model.

It is staff's practice to equate the Total Suspended Solids limits with the BOD₅ limits. TSS limits are established to equal BOD₅ limits since the two pollutants are closely related in terms of treatment of domestic sewage.

pH limitations are set at the water quality criteria.

E. coli limitations are in accordance with the Water Quality Standards 9 VAC25-260-170.

e. Effluent Annual Average Limitations and Monitoring, Outfall 001 – Nutrients

Nonsignificant dischargers are subject to aggregate wasteload allocations for Total Nitrogen (TN), Total Phosphorus (TP), and Sediments under the Total Maximum Daily Load (TMDL) for the Chesapeake Bay. Monitoring for TN, TP, Nitrate+Nitrite, and TSS is required in order to verify the aggregate wasteload allocations.

f. Effluent Limitations and Monitoring Summary:

The effluent limitations are presented in the following table. Limits were established for Flow, BOD₅, Total Suspended Solids, Ammonia, pH, Dissolved Oxygen, and Total Residual Chlorine.

The limit for Total Suspended Solids is based on Best Professional Judgement.

The mass loading (kg/d) for monthly and weekly averages were calculated by multiplying the concentration values (mg/l), with the flow values (in MGD) and a conversion factor of 3.785.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual dated March 27, 2014.

18. **Antibacksliding:**

All limits in this permit are at least as stringent as those previously established. Backsliding does not apply to this reissuance.

19. Effluent Limitations/Monitoring Requirements:

Design flow is 0.0047 MGD.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Monthly Average		Weekly Average		Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL		NA		NA	NL	1/D	Estimate
pH	3	NA		NA		6.0 S.U.	9.0 S.U.	1/D	Grab
BOD ₅	3,5	24 mg/L	0.40 kg/day	36 mg/L	0.60 kg/day	NA	NA	1/M	Grab
Total Suspended Solids (TSS)	2	24 mg/L	0.40 kg/day	36 mg/L	0.60 kg/day	NA	NA	1/M	Grab
Dissolved Oxygen (DO)	3,5	NA		NA		6.0 mg/L	NA	1/D	Grab
Ammonia, as N (mg/L)	3	6.6 mg/L		6..6 mg/L		NA	NA	1/M	Grab
<i>E. coli</i> (Geometric Mean) ^{a,b}	3	126 n/100 ml		NA		NA	NA	1/W	Grab
Total Residual Chlorine (after contact tank)	2,4	NA		NA		1.0 mg/L	NA	1/D	Grab
Total Residual Chlorine (after dechlorination)	3	0.008 mg/L		0.010 mg/L		NA	NA	1/D	Grab
Nitrate+Nitrite, as N	6	NL mg/L		NA		NA	NA	1/YR	Grab
Total Nitrogen ^{c,d}	6	NL mg/L		NA		NA	NA	1/YR	Calculated
Total Kjeldahl Nitrogen (TKN)	6	NL mg/L		NA		NA	NA	1/YR	Grab
Total Phosphorus ^e	6	NL mg/L		NA		NA	NA	1/YR	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/D = Once every day.

1. Federal Effluent Requirements

NA = Not applicable.

1/M = Once every month.

2. Best Professional Judgment

NL = No limit; monitor and report.

1/W = Once every week.

3. Water Quality Standards

S.U. = Standard units.

1/YR = Once every calendar year.

4. DEQ Disinfection Guidance

5. Stream Model (undated)

6. Guidance Memo No. 14-2011 –Nutrient Monitoring for “Non significant” Discharges to the Chesapeake Bay Watershed

Grab = An individual sample collected over a period of time not to exceed 15 minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

a. Samples shall be collected between 10:00 a.m. and 4:00 p.m.

b. The permittee shall sample and submit *E. coli* results at the frequency of once every week for three (3) months. If all reported results for *E. coli* do not exceed 126 n/100 mL, reported as the geometric mean, the permittee may submit a written request to DEQ-NRO for a reduction in the sampling frequency to once per quarter.

Upon approval, the permittee shall collect four (4) samples at a weekly interval during one month within each quarterly monitoring period as defined below. The results shall be reported as the geometric mean.

The quarterly monitoring periods shall be January through March, April through June, July through September and October through December. The DMR shall be submitted no later than the 10th day of the month following the monitoring period.

Should any of the quarterly monitoring results for *E. coli* exceed 126 n/100 mL, reported as the geometric mean, the monitoring frequency shall revert to once per week for the remainder of the permit term.

c. Total Nitrogen = Sum of TKN plus Nitrate+Nitrite.

d. For Total Nitrogen (TN), if none of the daily concentration data for the respective species (i.e., TKN, Nitrates/Nitrites) are equal to or above the QL for the respective analytical methods used, the daily TN concentration value reported shall equal one half of the largest QL used for the respective species. If one of the data is equal to or above the QL, the daily TN concentration value shall be treated as that data point is reported. If more than one of the data is above the QL, the daily TN concentration value shall equal the sum of the data points as reported.

e. For Total Phosphorus, all daily concentration data below the quantification level (QL) for the analytical method used shall be treated as half the QL. All daily concentration data equal to or above the QL for the analytical method used shall be treated as it is reported.

20. Other Permit Requirements:

Part I.B. of the permit contains additional chlorine monitoring requirements, quantification levels and compliance reporting instructions.

These additional chlorine requirements are necessary per the Sewage Collection and Treatment Regulations at 9VAC25-790 and by the Water Quality Standards at 9VAC25-260-170. A minimum chlorine residual must be maintained at the exit of the chlorine contact tank to assure adequate disinfection. No more than 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be <1.0 mg/L with any TRC <0.6 mg/L considered a system failure. Monitoring at numerous STPs has concluded that a TRC residual of 1.0 mg/L is an adequate indicator of compliance with the *E. coli* criteria. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Specific analytical methodologies for toxics are listed in this permit section as well as quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or for use in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.

21. Other Special Conditions:

- a. **95% Capacity Reopener.** The VPDES Permit Regulation at 9VAC25-31-200.B.4 requires all POTWs and PVOTWs develop and submit a plan of action to DEQ when the monthly average influent flow to their sewage treatment plant reaches 95% or more of the design capacity authorized in the permit for each month of any three consecutive month period. This facility is a POTW.
- b. **O&M Manual Requirement.** Required by Code of Virginia §62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790; VPDES Permit Regulation, 9VAC25-31-190.E. The permittee shall maintain a current Operations and Maintenance (O&M) Manual. The permittee shall operate the treatment works in accordance with the O&M Manual and shall make the O&M Manual available to Department personnel for review upon request. Any changes in the practices and procedures followed by the permittee shall be documented in the O&M Manual within 90 days of the effective date of the changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.
- c. **CTC, CTO Requirement.** The Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9VAC25-790 requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.
- d. **Licensed Operator Requirement.** The Code of Virginia at §54.1-2300 et seq. and the VPDES Permit Regulation at 9VAC25-31-200 C, and by the Board for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.) requires licensure of operators. This facility requires a Class IV operator.
- e. **Reliability Class.** The Sewage Collection and Treatment Regulations at 9VAC25-790 require sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet a reliability Class of II.
- f. **Water Quality Criteria Reopener.** The VPDES Permit Regulation at 9VAC25-31-220 D. requires establishment of effluent limitations to ensure attainment/maintenance of receiving stream water quality criteria. Should effluent monitoring indicate the need for any water quality-based limitations, this permit may be modified or alternatively revoked and reissued to incorporate appropriate limitations.
- g. **Sludge Reopener.** The VPDES Permit Regulation at 9VAC25-31-220.C requires all permits issued to treatment works treating domestic sewage (including sludge-only facilities) include a reopener clause allowing incorporation of any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the CWA.
- h. **Sludge Use and Disposal.** The VPDES Permit Regulation at 9VAC25-31-100.P; 220.B.2, and 420 through 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. The facility includes a treatment works treating domestic sewage

- i. **TMDL Reopener.** This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.

22. Permit Section Part II.

Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

23. Changes to the Permit from the Previously Issued Permit:

a. Special Conditions:

The following special condition was removed from this permit reissuance:

- 1) Treatment Works Closure Plan – this facility serves only the elementary school so this special condition is not applicable.

b. Monitoring and Effluent Limitations:

- 1) Monitoring for TN, TP, Total Kjeldahl Nitrogen, and Nitrate+Nitrite has been added to the permit in accordance with Guidance Memo No. 14-2011 –Nutrient Monitoring for “Nonsignificant” Discharges to the Chesapeake Bay Watershed.
- 2) *E.coli* effluent monitoring was increased from 2 per month to once a week in accordance with VPDES Permit Manual dated March 27, 2014.

24. Variances/Alternate Limits or Conditions:

This permit contains no variances/alternate limits or conditions.

25. Public Notice Information:

First Public Notice Date: 3/26/15

Second Public Notice Date: 4/2/15

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3873, douglas.frasier@deq.virginia.gov. See Attachment 10 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

26. Additional Comments:

Previous Board Action(s): None.

Staff Comments: None.

Public Comment: No comments were received during the public notice.

Unionville Elementary School Wastewater Treatment Plant
Fact Sheet Attachments

Attachment	Description
1	Flow Frequency Memo dated November 3, 1998
2	Site Inspection Report conducted on April 14, 2009, by Terry Nelson, DEQ-NRO Water Inspector
3	Planning Statement for Unionville Elementary School WWTP, dated October 22, 2014
4	Freshwater Water Quality Criteria/ Wasteload Allocated Analysis
5	Effluent pH and Temperature data August 2010 through December 2014
6	1999 Ammonia Permit Limitation Calculations
7	2015 Ammonia Effluent Calculation
8	Total Chlorine Residual Calculation
9	Stream Model (undated)
10	Public Notice

MEMORANDUM

Attachment 1

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION
Water Quality Assessments and Planning
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Flow Frequency Determination
Unionville Elementary School STP - #VA0060330

TO: James Olson, NRO

FROM: Paul E. Herman, P.E., WQAP

DATE: November 3, 1998

COPIES: Ron Gregory, Charles Martin, File

This memo supercedes my November 19, 1993 memo to Joan Crowther concerning the subject VPDES permit.

The Unionville Elementary School STP discharges to an unnamed tributary of the Riga Run near Unionville, VA. Stream flow frequencies are required at this site by the permit writer for the purpose of calculating effluent limitations for the VPDES permit.

The values at the discharge point were determined by inspection of the USGS Unionville Quadrangle topographical map which shows the receiving stream as intermittent at the discharge point. The flow frequencies for intermittent streams are 0.0 cfs for the 1Q10, 7Q10, 30Q5, high flow 1Q10, high flow 7Q10, and the harmonic mean. For modeling purposes, flow frequencies have been determined for the first perennial reach downstream of the discharge point.

The USGS conducted several flow measurements on the Terrys Run from 1989 to 1992. The measurements were made at the Route 629 bridge near Tatum, VA. The measurements made by the USGS correlated very well with the same day daily mean values from the continuous record gage on the North Fork Rivanna River near Proffit, VA #02032680. The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The required flow frequencies from the reference gage were plotted on the regression line and the associated flow frequencies at the measurement site were determined from the graph.

The flow frequencies at the perennial point were determined by using the values at the measurement site and adjusting them by proportional drainage areas. The data for the reference gage, the measurement site and the perennial point are presented below:

N.F. Rivanna River near Proffit, VA (#02032680):

Drainage Area = 176 mi ²		
1Q10 = 6.6 cfs	High Flow 1Q10 = 24 cfs	
7Q10 = 8.3 cfs	High Flow 7Q10 = 29 cfs	
30Q5 = 17 cfs	HM = 66 cfs	

Terrys Run at Route 629 near Tatum, VA (#01670230):

Drainage Area = 26.9 mi ²		
1Q10 = 0.06 cfs	High Flow 1Q10 = 0.57 cfs	
7Q10 = 0.09 cfs	High Flow 7Q10 = 0.80 cfs	
30Q5 = 0.31 cfs	HM = 3.2 cfs	

UT to Riga Run at perennial point:

Drainage Area = 0.33 mi ²		
1Q10 = 0.0 cfs	High Flow 1Q10 = 0.007 cfs	
7Q10 = 0.001 cfs	High Flow 7Q10 = 0.010 cfs	
30Q5 = 0.004 cfs	HM = 0.039 cfs	

The high flow months are December through June.

This analysis assumes there are no significant discharges, withdrawals or springs influencing the flow in the unmaed tributary upstream of the perennial point.

If there are any questions concerning this analysis, please let me know.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

NORTHERN REGIONAL OFFICE

13901 Crown Court, Woodbridge, Virginia 22193

(703) 583-3800 Fax (703) 583-3821

www.deq.virginia.gov

Preston Bryant
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

April 29, 2009

Mr. Larry Massie
Acting Superintendent
Orange County Public Schools
437 Waugh Boulevard
Orange, VA 22960

Re: Unionville Elementary School STP Inspection – VA0060330

Dear Mr. Massie:

Attached is a copy of the site inspection report generated while conducting a Facility Technical Inspection at the Unionville Elementary School - Sewage Treatment Plant (STP) on April 14, 2009. The compliance staff would like to thank Mr. Tim Jenkins for his time and assistance during the inspection.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office at (703) 583-3833 or by E-mail at twnelson@deq.virginia.gov.

Sincerely,

A handwritten signature in cursive script that reads "Terry Nelson".

Terry Nelson
Environmental Specialist II

cc: Permit/DMR File
OWCP - SGStell
Electronic Copy: Compliance Manager; Compliance Auditor
Electronic Copy: Mr. Tim Jenkins – Dabney & Crooks

Attachment 2

**DEQ
WASTEWATER FACILITY INSPECTION REPORT
PREFACE**

VPDES/State Certification No.	(RE) Issuance Date	Amendment Date	Expiration Date
VA0060330	06/24/2004		06/24/2009

Facility Name	Address	Telephone Number
Unionville Elementary School	10285 Zachary Taylor Highway Unionville, VA 22567	(540) 661-4540
Owner Name	Address	Telephone Number
Orange County Public Schools	437 Waugh Boulevard Orange, VA 22960	(540) 661-4550
Responsible Official	Title	Telephone Number
Mr. Larry Massie	Acting Superintendent	(540) 661-4550
Responsible Operator	Operator Cert. Class/number	Telephone Number
Douglas Crooks	Class I / 1909000367	(540) 373-0380

TYPE OF FACILITY:							
DOMESTIC				INDUSTRIAL			
Federal		Major		Major		Primary	
Non-federal	X	Minor	X	Minor		Secondary	

INFLUENT CHARACTERISTICS:			DESIGN:		
	Flow	4,700 gal/day			
	Population Served	Variable			
	Connections Served	One school			
	BOD ₅	No data			
	TSS	No data			

EFFLUENT LIMITS: Units in mg/L unless otherwise specified.							
Parameter	Min.	Avg.	Max.	Parameter	Min.	Avg.	Max.
Flow (MGD)		0.0047	NL	BOD₅		24	36
pH (S.U.)	6.0		9.0	Total Contact Cl	1.0		
TSS		24	36	Inst Tech Min Cl	0.6		
DO	6.0			Inst Res Max Cl		0.008	0.010
NH₃		6.6	6.6				

	Receiving Stream	UT to Riga Run	
	Basin	Rappahannock River	
	Discharge Point (LAT)	38° 15 38" N	
	Discharge Point (LONG)	77° 57' 00" W	

Virginia Department of Environmental Quality
Northern Regional Office

FOCUSED CEI TECH/LAB INSPECTION REPORT

FACILITY NAME: Unionville Elementary School		INSPECTION DATE: April 14, 2009	
		INSPECTOR: Terry Nelson	
PERMIT No.: VA0060330		REPORT DATE: April 23, 2009	
TYPE OF FACILITY:	<input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Major	TIME OF INSPECTION: Arrival 0930 Departure 1000	
	<input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Minor		
	<input type="checkbox"/> Federal <input type="checkbox"/> Small Minor	TOTAL TIME SPENT (including prep & travel) 4 hours	
	<input type="checkbox"/> HP <input type="checkbox"/> LP		
PHOTOGRAPHS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		UNANNOUNCED INSPECTION? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
REVIEWED BY / Date:			
PRESENT DURING INSPECTION: Tim Jenkins, Dabney & Crooks			

TECHNICAL INSPECTION

1. Has there been any new construction? (Last inspection April 2005) • If so, were plans and specifications approved? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. Is the Operations and Maintenance Manual approved and up-to-date? <u>Comments:</u> Outdated permit in Appendix, DEQ phone numbers are not consistent (703-583-3800 is recommended), outdated Chain of Custody for Patton, Harris, and Rust, some test methods listed are no longer approved	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. Are the Permit and/or Operation and Maintenance Manual specified licensed operator being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Are the Permit and/or Operation and Maintenance Manual specified operator staffing requirements being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Is there an established and adequate program for training personnel? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Are preventive maintenance task schedules being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Does the plant experience any organic or hydraulic overloading? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. Have there been any bypassing or overflows since the last inspection? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9. Is the standby generator (including power transfer switch) operational and exercised regularly? <u>Comments:</u> Not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Is the plant alarm system operational and tested regularly? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Virginia Department of Environmental Quality
Northern Regional Office

FOCUSED CEI TECH/LAB INSPECTION REPORT

FACILITY NAME: Unionville Elementary School		INSPECTION DATE: April 14, 2009	
		INSPECTOR: Terry Nelson	
PERMIT No.: VA0060330		REPORT DATE: April 23, 2009	
TYPE OF FACILITY:	<input checked="" type="checkbox"/> Municipal <input type="checkbox"/> Major	TIME OF INSPECTION: Arrival 0930 Departure 1000	
	<input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Minor		
	<input type="checkbox"/> Federal <input type="checkbox"/> Small Minor	TOTAL TIME SPENT (including prep & travel) 4 hours	
	<input type="checkbox"/> HP <input type="checkbox"/> LP		
PHOTOGRAPHS: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		UNANNOUNCED INSPECTION? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
REVIEWED BY / Date: <i>[Signature]</i> 4/23/09			
PRESENT DURING INSPECTION: Tim Jenkins, Dabney & Crooks			

TECHNICAL INSPECTION

1. Has there been any new construction? (Last inspection April 2005) • If so, were plans and specifications approved? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
2. Is the Operations and Maintenance Manual approved and up-to-date? <u>Comments:</u> Outdated permit in Appendix, DEQ phone numbers are not consistent (703-583-3800 is recommended), outdated Chain of Custody for Patton, Harris, and Rust, some test methods listed are no longer approved	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
3. Are the Permit and/or Operation and Maintenance Manual specified licensed operator being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. Are the Permit and/or Operation and Maintenance Manual specified operator staffing requirements being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. Is there an established and adequate program for training personnel? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. Are preventive maintenance task schedules being met? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7. Does the plant experience any organic or hydraulic overloading? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8. Have there been any bypassing or overflows since the last inspection? <u>Comments:</u>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9. Is the standby generator (including power transfer switch) operational and exercised regularly? <u>Comments:</u> Not applicable	<input type="checkbox"/> Yes <input type="checkbox"/> No
10. Is the plant alarm system operational and tested regularly? <u>Comments:</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

TECHNICAL INSPECTION

11. Is sludge disposed of in accordance with the approved sludge management plan? Comments: <u>Wheeler Septic takes sludge to Massaponax WWTF</u>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12. Is septage received? • If so, is septage loading controlled, and are appropriate records maintained? Comments: _____	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13. Are all plant records (operational logs, equipment maintenance, industrial waste contributors, sampling and testing) available for review and are records adequate? Comments: _____	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
14. Which of the following records does the plant maintain? <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Operational logs <input checked="" type="checkbox"/> Instrument maintenance & calibration </div> <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Mechanical equipment maintenance <input type="checkbox"/> Industrial Waste Contribution (Municipal facilities) </div> Comments: _____	
15. What does the operational log contain? <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Visual observations <input checked="" type="checkbox"/> Flow Measurement <input checked="" type="checkbox"/> Laboratory results <input checked="" type="checkbox"/> Process adjustments </div> <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Control calculations <input type="checkbox"/> Other (specify) _____ </div> Comments: _____	
16. What do the mechanical equipment records contain? <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> As built plans and specs <input checked="" type="checkbox"/> Manufacturers instructions <input checked="" type="checkbox"/> Lubrication schedules </div> <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Spare parts inventory <input type="checkbox"/> Equipment/parts suppliers </div> <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Other (specify) _____ </div> Comments: _____	
17. What do the industrial waste contribution records contain (Municipal only)? <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Waste characteristics <input type="checkbox"/> Impact on plant <input type="checkbox"/> Locations and discharge types </div> <div style="display: flex; justify-content: space-between;"> <input type="checkbox"/> Other (specify) _____ </div> Comments: Not applicable	
18. Which of the following records are kept at the plant and available to personnel? <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Equipment maintenance records <input checked="" type="checkbox"/> Operational log <input type="checkbox"/> Industrial contributor records </div> <div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Instrumentation records <input checked="" type="checkbox"/> Sampling and testing records </div> Comments: _____	
19. List records not normally available to plant personnel and their location: Comments: Major maintenance records stored at Orange County Schools superintendent office.	
20. Are the records maintained for the required time period (three or five years)? Comments: _____	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Permit #

VA0060330

UNIT PROCESS EVALUATION SUMMARY SHEET

UNIT PROCESS	APPLICABLE	PROBLEMS*	COMMENTS
Sewage Pumping			
Flow Measurement (Influent)			
Screening/Comminution			
Grit Removal			
Flow Equalization	X		
Primary Sedimentation			
Septic Tank and Sand Filter	X		
Activated Sludge Aeration	X		
Secondary Sedimentation	X		
Flocculation			
Tertiary Sedimentation			
Filtration			
Chlorination	X		
Dechlorination	X		
Post Aeration	X		
Flow Measurement (Effluent)	X		
Plant Outfall	X		
Sludge Pumping			
Aerobic Digestion			

* Problem Codes

1. Unit Needs Attention
2. Abnormal Influent/Effluent
3. Evidence of Equipment Failure

4. Unapproved Modification or Temporary Repair
5. Evidence of Process Upset
6. Other (explain in comments)

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

- Operators are at the facility approximately 30 minutes per visit. The plant is not manned when school is not in session or no discharge is anticipated.
- Orange County schools were not in session during the inspection.
- A grease trap and septic tank precede the treatment system. Orange County Schools maintains the grease trap and septic tank. The septic tank was pumped out in July 2008.
- The secondary treatment system is a package plant that contains a sludge holding tank, aeration basins, and clarifier.
- The log book is stored in a waterproof cabinet. The log book included entries for minor maintenance performed on the system.
- Mr. Jenkins cycled all the blowers during the inspection. No problems were noted for the blowers.
- The aeration basin color was an unusual shade of brown that stabilized as the recycle pumps ran. Without school in session, negligible influent flow had been received since last Friday according to Mr. Jenkins.
- A slight scum layer had formed on the clarifier, but it quickly dispersed when the return sludge system cycled on.
- Thick weeds were observed growing around several of the plant structures. According to Mr. Jenkins, school staff performs the mowing and weed removal.
- Ground settling/subsidence was observed in several locations around the treatment plant.
- The chlorine contact tank is below ground and is covered by a shed. Mr. Jenkins unlocked the shed. Chemicals are stored in the shed and proper clean-up of spills is difficult due to limited space.
- Mr. Jenkins collects the chlorination sample at the inlet to the dechlorination unit.
- A tablet feeder is used for dechlorination.
- From here, the water flows downhill to the outfall.

Permit # VA0060330

EFFLUENT FIELD DATA:

Flow	NA MGD	Dissolved Oxygen	NA mg/L	TRC (Contact Tank)	NA mg/L
pH	NA S.U.	Temperature	NA °C	TRC (Final Effluent)	NA mg/L
Was a Sampling Inspection conducted? <input checked="" type="checkbox"/> Yes (see Sampling Inspection Report) <input checked="" type="checkbox"/> No					

CONDITION OF OUTFALL AND EFFLUENT CHARACTERISTICS:

1. Type of outfall:	<input checked="" type="checkbox"/> Shore based	<input type="checkbox"/> Submerged	Diffuser?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Are the outfall and supporting structures in good condition?	<input type="checkbox"/> Yes		<input type="checkbox"/> No		
3. Final Effluent (evidence of following problems):	<input type="checkbox"/> Sludge bar		<input type="checkbox"/> Grease		
	<input type="checkbox"/> Turbid effluent	<input type="checkbox"/> Visible foam	<input type="checkbox"/> Unusual color	<input type="checkbox"/> Oil sheen	
4. Is there a visible effluent plume in the receiving stream?	<input type="checkbox"/> Yes		<input type="checkbox"/> No		
5. Receiving stream:	<input type="checkbox"/> No observed problems		<input type="checkbox"/> Indication of problems (explain below)		
<u>Comments:</u> Outfall was not inspected as there was no effluent flow.					

REQUIRED CORRECTIVE ACTIONS:

No required corrective actions.

NOTES and COMMENTS:

1. The facility appears to be well operated.
2. Orange County grounds keeping staff should properly trim the weeds and grass within the treatment plant area.
3. DEQ staff recommends grading or filling the areas where the ground had subsided.



1) Weeds at influent vault.



2) Weeds covering pipe into aeration system.



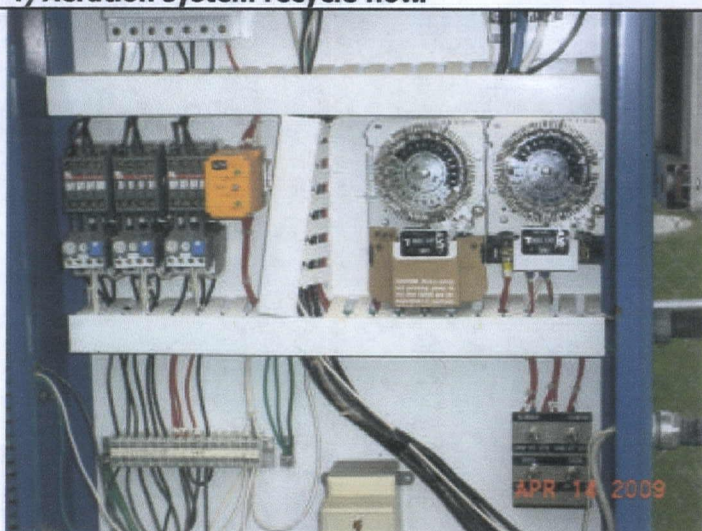
3) Ground settling adjacent to aeration system.



4) Aeration system recycle flow.



5) Scum layer on clarifier.



6) Blower control panel.

Unionville Elementary School

Photos by Terry Nelson

Layout by Terry Nelson

VPDES Permit VA0060330

April 14, 2009

Page 1 of 1

To: Joan Crowther
From: Jennifer Carlson

Date: October 22, 2014
Subject: Planning Statement for Unionville Elementary School WWTP
Permit Number: VA0060330

Information for Outfall 001:

Discharge Type: Municipal, Minor
Discharge Flow: 0.0047 MGD
Receiving Stream: Riga Run, UT
Latitude / Longitude: 38° 15' 43.78" 77° 57' 5.18"
Rivermile: 0.83
Streamcode: 8-XAL
Waterbody: VAN-F07
Water Quality Standards: York River, Section 3, Class III, Special Standards None
Drainage Area: 0.234 sq mi

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

This facility discharges into an unnamed tributary to Riga Run. This unnamed tributary has not been monitored or assessed by DEQ. There is a DEQ monitoring station (8-RIG004.52) located on Riga Run, approximately 1.8 miles downstream of Outfall 001 at the Route 650 bridge crossing. However, the majority of the samples were collected at this station in the 1999-2000 timeframe, with the last station visit in 2006. The water quality summary for Riga Run is presented at the end of this section. The nearest downstream DEQ ambient monitoring station with recent data is 8-TRY004.98 on Terrys Run, located at the Route 629 bridge crossing, approximately 6.8 miles downstream of Outfall 001. The following is the water quality summary for this segment of Terrys Run, as taken from the 2012 Integrated Report:

Class III, Section 3.

DEQ monitoring station located in this segment of Terrys Run:

- *Ambient monitoring station 8-TRY004.98, at Route 629.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. Additionally, excursions above the fish tissue value (TV) of 300 parts per billion (ppb) for mercury (Hg) in fish tissue were recorded in tissue from one species (bluegill sunfish) of fish sampled in 2006 (two total excursions) at monitoring station 8-TRY004.98, noted by an observed effect.

There was no new E. coli monitoring for the 2012 assessment. The bacteria impairment listed in the 2010 assessment will be carried forward. A bacteria TMDL for the Terrys Run watershed has been completed and approved. The aquatic life and wildlife uses are considered fully supporting.

Attachment 3

The following is the water quality summary for Riga Run, as taken from the 2012 Integrated Report:

Class III, Section 3.

DEQ monitoring stations located in this segment of Riga Run:

- *Ambient monitoring station 8-RIG004.52, at Route 650*
- *Freshwater probabilistic monitoring station 8-RIG003.01, 1.5 rivermiles downstream of Route 650.*

The aquatic life, wildlife, and fish consumption uses are considered fully supporting. The recreation use was not assessed.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

No.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes.

Table B. Information on Downstream 303(d) Impairments and TMDLs

Waterbody Name	Impaired Use	Cause	Distance From Outfall	TMDL completed	WLA	Basis for WLA	TMDL Schedule
Impairment Information in the 2012 Integrated Report							
Terry's Run	Recreation	<i>E. coli</i>	6.5 miles	York River Basin (Lake Anna Tribs) Bacteria 11/04/05	8.21E+09 cfu/year <i>E. coli</i>	126 cfu/100ml <i>E. coli</i> --- 0.0047 MGD	N/A
	Fish Consumption	PCBs		N/A	---	---	2018

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

In support for the PCB impairment listed for Terry's Run and downstream in Lake Anna, this facility is a candidate for low-level PCB monitoring, based upon its designation as a minor municipal facility. Low-level PCB analysis uses EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. DEQ staff has concluded that low-level PCB monitoring is not warranted for this facility, as it is a small wastewater treatment facility (<0.1 MGD) and is not expected to be a source of PCBs. Based upon this information, this facility will not be requested to monitor for low-level PCBs.

There is a completed downstream TMDL for the aquatic life use impairment for the Chesapeake Bay. However, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes located within 5 miles of this discharge.

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Unionville Elementary School WWTP

Permit No.: VA0060330

Receiving Stream: Riga Run, UT

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO ₃) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO ₃) =	50 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	21 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	7.9 SU
10% Maximum pH =	SU	30Q10 (Wet season) =	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.0047 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile ^C	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin ^C	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	1.01E+01	1.84E+00	na	--	1.01E+01	1.84E+00	na	--	--	--	--	--	--	--	--	--	1.01E+01	1.84E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	1.01E+01	2.80E+00	na	--	1.01E+01	2.80E+00	na	--	--	--	--	--	--	--	--	--	1.01E+01	2.80E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene ^C	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine ^C	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis(2-Chloroethyl) Ether ^C	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate ^C	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform ^C	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride ^C	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane ^C	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Attachment 4

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^C	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene ^C	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD ^C	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE ^C	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT ^C	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine ^C	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane ^C	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane ^C	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane ^C	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene ^C	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin ^C	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene ^C	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine ^C	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol ^C	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides																					
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	1.0E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	6.5E+01	6.6E+01	na	2.6E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
10-Aug	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
10-Sep	1		
	2		
	3		
	4		
	5		
	6		
	7	6.3	23
	8	7.1	23
	9	8.1	23
	10	7.8	22
	11		
	12		
	13	7.3	21
	14	8	22
	15	7.9	22
	16	7.3	22
	17	7.5	22
	18		
	19		
	20	7.7	22
	21	7.8	22
	22	7.7	23
	23	7.7	22
	24	7.6	22
	25		
	26		
	27	7.8	22

Month	Day	pH	temperature
10-Sep	27	7.8	21
	28	7.8	21
	29	7.7	21
	30	7.3	20
10-Oct	1		
	2		
	3	6.8	20
	4	7.6	20
	5	7.7	19
	6	7.6	19
	7	7.2	20
	8		
	9		
	10	7.1	19
	11	7.6	20
	12	7	20
	13	7.8	19
	14		
	15		
	16		
	17	7.2	19
	18	7.3	19
	19	7.3	19
	20	7.8	19
	21	7.6	19
	22		
	23		
	24	7.1	18
	25	7.6	18
	26	7.4	18
	27	7.1	19
	28	7.7	19
	29		
	30		
	31	6.9	17
10-Nov	1		
	2	6.8	16
	3	7.7	16
	4	7.6	17
	5		
	6		
	7	6.8	16
	8	6.7	15
	9	6.8	15
	10	7.4	16
	11	7.6	16
	12		
	13		
	14	7.5	16
	15	7.5	15
	16	7.3	15
	17	7.7	16
	18	7.9	16
	19		
	20		
	21	7.6	16
	22	7.7	15
	23		

Month	Day	pH	temperature
10-Nov	24	7.8	15
	25		
	26		
	27		
	28		
	29	7	13
	30	6.8	13
10-Dec	1	6.8	13
	2	7.7	16
	3	7.8	14
	4		
	5		
	6	6.8	12
	7	7.7	12
	8	7.9	11
	9	7.7	11
	10	7.8	10
	11		
	12		
	13	7.7	8
	14	7.6	8
	15	7.6	10
	16		
	17		
	18		
	19		
	20	7.6	8
	21	7.6	7
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30	*	
	31		
11-Jan	1		
	2		
	3	7.3	8
	4	7.4	8
	5	7.2	8
	6	7.6	9
	7	7.3	10
	8		
	9		
	10	7.5	7
	11	7.1	6
	12	7.2	8
	13	7.4	9
	14	7.5	8
	15		
	16		
	17		
	18		
	19	7.5	9
	20	7.6	10

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
11-Jan	21	7.7	10
	22		
	23		
	24	7	8
	25	7.5	9
	26	7.3	8
	27		
	28	7.5	9
	29		
	30		
	31	7.2	7
11-Feb	1	7.5	7
	2	7	7
	3	7.4	9
	4	7.2	9
	5		
	6		
	7	7	8
	8	7.5	9
	9	7.4	8
	10		
	11	7.9	8
	12		
	13		
	14	7.6	8
	15	7.5	9
	16	7.5	10
	17	7.6	11
	18	7.5	12
	19		
	20		
	21	7.7	9
	22	7.6	10
	23	6.6	10
	24	6.8	10
	25	7	10
	26		
	27		
	28	7.1	11
11-Mar	1	7	10
	2	7.5	11
	3	7.9	12
	4	8	10
	5		
	6		
	7	7.7	10
	8	7.6	11
	9	7.4	11
	10	7.3	11
	11	7.1	11
	12		
	13		
	14	7	11
	15	7.6	11
	16	7.5	11
	17	7.7	12
	18	7.8	13
	19		

Month	Day	pH	temperature
11-Mar	20		
	21	7.5	12
	22	7.7	14
	23	7.5	13
	24	6.9	13
	25	7.4	13
	26		
	27		
	28	7.3	11
	29	7.6	13
	30	7.4	13
	31	7.2	12
11-Apr	1	7.6	12
	2		
	3		
	4	7.2	13
	5	7.9	13
	6	7.8	13
	7	7.8	13
	8	7.7	13
	9		
	10		
	11	6.8	14
	12	7.6	15
	13	7.6	14
	14	7.4	13
	15	7.8	14
	16		
	17		
	18	7	15
	19	7.2	15
	20	7	15
	21		
	22		
	23		
	24		
	25		
	26	7.6	17
	27	8.1	17
	28	7.9	18
	29	7.4	17
	30		
11-May	1		
	2	6.7	17
	3	7.4	19
	4	7.5	17
	5	7.8	17
	6	7.6	17
	7		
	8		
	9	6.2	17
	10	6.9	18
	11	6.9	18
	12	7.4	18
	13	7.6	18
	14		
	15		
	16	6.9	17

Month	Day	pH	temperature
11-May	17	7.4	18
	18	7.7	18
	19	7.5	18
	20	7.4	18
	21		
	22		
	23	6.7	18
	24	7	19
	25	7	18
	26	6.9	19
	27	7	19
	28		
	29		
	30		
	31	7	21
11-Jun	1	7.7	22
	2	7.7	22
	3	7.8	21
	4		
	5		
	6	7.1	21
	7	7.6	22
	8	7.4	22
	9	7.5	22
	10	7.7	22
	11		
	12		
	13	7.1	20
	14	7.8	22
	15	7.7	22
	16	7.7	22
	17	7.5	22
	18		
	19		
	20		
	21	7.7	22
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
11-Jul	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
11-Jul	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
11-Aug	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
11-Sep	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		

Month	Day	pH	temperature
11-Sep	10		
	11		
	12	6.3	21
	13	7.1	22
	14	7.7	22
	15	7.5	22
	16	8.8	24
	17		
	18		
	19	8.1	21
	20	8.2	21
	21	8	21
	22	7.5	21
	23	7.3	21
	24		
	25		
	26	8.2	22
	27	7.9	22
	28	7.6	21
	29	7.5	21
	30	7.6	21
11-Oct	1		
	2		
	3		
	4	8.4	19
	5	7.3	20
	6	7.2	19
	7	8.2	19
	8		
	9		
	10	7.8	19
	11	8.2	19
	12	8	20
	13	8	20
	14	7.4	19
	15		
	16		
	17	7.5	19
	18	7.3	19
	19	7.6	19
	20	7.9	18
	21	7.7	18
	22		
	23		
	24	7.9	17
	25	7.2	18
	26	7.7	18
	27	7.5	18
	28	7.5	17
	29		
	30		
	31	7.4	16
11-Nov	1	7.2	18
	2	7.5	15
	3	7.2	15
	4	7.2	15
	5		
	6		

Month	Day	pH	temperature
11-Nov	7	7	15
	8	7.8	15
	9	7.5	14
	10	7.3	15
	11	7.1	15
	12		
	13		
	14	7.7	14
	15	7.7	16
	16	7.3	16
	17	7.3	15
	18	7.2	14
	19		
	20		
	21	7.1	14
	22	7.4	13
	23		
	24		
	25		
	26		
	27		
	28	7.2	13
	29	7	13
	30	7.1	14
11-Dec	1	7.1	13
	2	7.3	14
	3		
	4		
	5	6.9	13
	6	6.9	14
	7	6.8	13
	8	7	13
	9	7.1	13
	10		
	11		
	12	7.5	12
	13	6.9	11
	14	7.2	13
	15	7.1	13
	16	7	13
	17		
	18		
	19	7.4	12
	20	7.1	12
	21	8.4	13
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
12-Jan	1		
	2		
	3	7.6	10

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
12-Jan	4	7.8	9
	5	7.9	10
	6	7.8	10
	7		
	8		
	9	7.6	10
	10	8.3	10
	11	8.2	11
	12	8.1	10
	13	7.9	10
	14		
	15		
	16		
	17	8.4	9
	18	8.3	10
	19	8.3	10
	20	8.2	10
	21		
	22		
	23	8	7
	24	8.2	10
	25	8.1	10
	26	7.3	11
	27	8.1	12
	28		
	29		
	30	8	12
	31	8.4	11
12-Feb	1	8.2	11
	2	8.1	11
	3	8	11
	4		
	5		
	6	8	11
	7	8.2	11
	8	8.2	11
	9	8.1	11
	10	8.2	11
	11		
	12		
	13	7.5	10
	14	8.1	10
	15	7.3	11
	16	7.8	11
	17	7.8	11
	18		
	19		
	20	7.9	10
	21	6.9	10
	22	7.5	11
	23	7.7	12
	24	7.7	12
	25		
	26		
	27	6.8	10
	28	7.8	11
	29	7.3	9
12-Mar	1	7.3	11

Month	Day	pH	temperature
12-Mar	2	7.2	11
	3		
	4		
	5	7.1	11
	6	8.1	9
	7	7.6	11
	8	7.2	12
	9	8.1	12
	10		
	11		
	12	6.9	12
	13	7.5	12
	14	7.5	13
	15	7.4	13
	16	7.3	13
	17		
	18		
	19	7	12
	20	7.1	14
	21	7.3	16
	22	7.4	16
	23	7.3	15
	24		
	25		
	26	7.1	15
	27	7.9	16
	28	7.3	16
	29	7	15
	30	7.1	15
	31		
12-Apr	1		
	2	7	16
	3	7.2	16
	4	7.1	16
	5	7.2	16
	6		
	7		
	8		
	9		
	10		
	11		
	12	7.1	14
	13	7	14
	14		
	15		
	16	6.8	14
	17	7.4	16
	18	6.8	17
	19	6.9	17
	20	6.9	17
	21		
	22		
	23	6.9	16
	24	7.2	16
	25	7.4	16
	26	7.8	15
	27	7.2	16
	28		

Month	Day	pH	temperature
12-Apr	29		
	30	6.2	17
12-May	1	7.1	17
	2	6.8	17
	3	7.4	17
	4	7.3	16
	5		
	6		
	7	6.7	19
	8	7.8	19
	9	7	19
	10	7.4	20
	11	7.3	19
	12		
	13		
	14	6.1	18
	15	7.4	18
	16	7.6	19
	17	7	19
	18	7.1	19
	19		
	20		
	21	6.9	19
	22	7.1	20
	23	7.1	19
	24	4	19
	25	6.9	19
	26		
	27		
	28		
	29	6.9	21
	30	7.1	22
	31	7.6	22
12-Jun	1	6.8	20
	2		
	3		
	4	6.1	21
	5	7.1	21
	6	6.6	21
	7	7.2	20
	8	7.1	20
	9		
	10		
	11	6.1	21
	12	6.5	21
	13	7.1	21
	14	6.5	21
	15	6.8	21
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
12-Jun	26		
	27		
	28		
	29		
	30		
12-Jul	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
12-Aug	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		

Month	Day	pH	temperature
12-Aug	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
12-Sep	1		
	2		
	3		
	4	7.3	24
	5	7.2	24
	6	7.1	223
	7	7	23
	8		
	9		
	10	7.3	22
	11	7.3	22
	12	7	22
	13	7	22
	14	7.1	21
	15		
	16		
	17	6.2	21
	18	6.3	20
	19	8.2	21
	20	8.2	21
	21	8	21
	22		
	23		
	24	7.2	19
	25	7.3	19
	26	7.3	20
	27	7	21
	28	7.1	21
	29		
	30		
12-Oct	1	6.5	20
	2	7.2	19
	3	7.1	21
	4	7	20
	5	7	20
	6		
	7		
	8	6.4	20
	9	7.1	19
	10	7.4	19
	11	7.2	19
	12	7.1	19
	13		
	14		
	15	7	18
	16	7.1	17
	17	7.1	18
	18	7	18
	19	7	18

Month	Day	pH	temperature
12-Oct	20		
	21		
	22	7.2	17
	23	7.1	19
	24	7.1	19
	25	7.7	19
	26	6.3	19
	27		
	28		
	29		
	30		
	31	7	15
12-Nov	1	7	15
	2	7.2	16
	3		
	4		
	5	7	14
	6		
	7	6.8	14
	8	7.6	16
	9	7.4	16
	10		
	11		
	12	7.4	14
	13	7.6	12
	14	7.4	12
	15	7.4	15
	16	7.2	16
	17		
	18		
	19	7	16
	20	6.2	15
	21		
	22		
	23		
	24		
	25		
	26	6.5	12
	27	7.4	13
	28	7.2	13
	29	7.3	13
	30	7.4	13
12-Dec	1		
	2		
	3	7.5	13
	4	7.2	15
	5	7	14
	6	7.7	14
	7	7.4	13
	8		
	9		
	10	6.3	14
	11	7.5	14
	12	7.6	14
	13	7.3	14
	14	7	14
	15		
	16		

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
12-Dec	17	6.4	13
	18	7.2	14
	19	7.2	13
	20	7.7	13
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
13-Jan	1		
	2	7.4	10
	3	7.3	9
	4	7.4	9
	5		
	6		
	7	6.9	9
	8	7.6	8
	9	7.1	10
	10	7.7	12
	11	7.5	12
	12		
	13		
	14	6.3	12
	15	7.6	12
	16	7.3	11
	17	7.7	12
	18	7.5	12
	19		
	20		
	21		
	22	7.6	8.2
	23	7.6	9
	24	7.2	8
	25		
	26		
	27		
	28		
	29	7.8	9
	30	7.3	9
	31	7.3	10
13-Feb	1	7.8	9
	2	7.3	9
	3		
	4	7.4	8
	5	7.2	9
	6	7.4	10
	7	7.1	10
	8	7.1	10
	9		
	10		
	11	6.1	9
	12	7.8	10

Month	Day	pH	temperature
13-Feb	13	7.2	10
	14	7.6	11
	15	7.4	11
	16		
	17		
	18	7.3	9
	19	7.6	10
	20	7.6	10
	21	7.6	11
	22	7.5	11
	23		
	24		
	25	6.8	8
	26	7.3	10
	27	7.7	10
	28	7.3	11
13-Mar	1	6.6	10
	2		
	3		
	4	7	9
	5	6.6	10
	6		
	7		
	8		
	9		
	10		
	11	6.2	8
	12	6.7	11
	13	7.1	10
	14	6.9	10
	15	7.3	10
	16		
	17		
	18		
	19	6.3	8
	20	6.5	10
	21	7	10
	22	6.7	9
	23		
	24		
	25		
	26	6.3	8
	27	7.3	9
	28	7.2	10
	29	7.1	10
	30		
	31		
13-Apr	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8	7.2	11
	9	7.7	11
	10	7.1	12
	11	7.3	14

Month	Day	pH	temperature
13-Apr	12	7.2	14
	13		
	14		
	15	7	13
	16	7.5	14
	17	7.1	16
	18	7.6	15
	19	7.3	15
	20		
	21		
	22	7.1	13
	23	7.6	15
	24	7.3	15
	25	7.6	15
	26	7.3	15
	27		
	28		
	29	7.4	14
	30	7.6	16
13-May	1	7.3	16
	2	7.1	16
	3	7.5	16
	4		
	5		
	6	6.9	16
	7	7.3	16
	8	7.8	16
	9	7.4	16
	10	6.5	16
	11		
	12		
	13	6.7	15
	14	7.4	17
	15	6.8	17
	16	7.2	17
	17	7.1	17
	18		
	19		
	20	6.8	18
	21	7.5	20
	22	7.2	18
	23	7.2	19
	24	7.2	18
	25		
	26		
	27		
	28	8.1	16.8
	29	7.6	19
	30	7.2	19
	31	7.4	19
13-Jun	1		
	2		
	3	7.6	19
	4	7.2	19
	5	7.2	20
	6	7.5	21
	7	7.3	21
	8		

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
13-Jun	9		
	10	6.8	20
	11	7.5	20
	12	7.5	20
	13	7.7	20
	14	7.5	20
	15		
	16		
	17	6.3	20
	18	7.6	19
	19	7.9	19
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
13-Jul	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
13-Aug	1		
	2		
	3		
	4		
	5		

Month	Day	pH	temperature
13-Aug	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
13-Sep	1		
	2		
	3	7.2	22
	4	7.3	23
	5	7.2	23
	6	7.2	23
	7		
	8		
	9	7.5	21
	10	7.8	21
	11	7.5	22
	12	7.4	23
	13	7.2	23
	14		
	15		
	16	6.5	20
	17	7.5	21
	18	7.1	23
	19	7.1	21
	20	7.1	21
	21		
	22		
	23	6.7	20
	24	7.9	20
	25	7.1	21
	26	7.3	20
	27	6.3	20
	28		
	29		
	30	6.9	18
13-Oct	1	7.2	19
	2	6.1	22

Month	Day	pH	temperature
13-Oct	3	6.9	20
	4	7.1	20
	5		
	6		
	7	6.2	20
	8	7.4	20
	9	6.1	20
	10	6.8	20
	11	7.1	19
	12		
	13		
	14	7.3	18
	15	7.2	18
	16	6.9	19
	17	6.9	19
	18	7	19
	19		
	20		
	21	6.5	18
	22	7.2	18
	23	6.6	18
	24	7.2	17
	25	7.1	17
	26		
	27		
	28	7.2	15
	29	6.6	15
	30	6.8	16
	31	6.6	16
13-Nov	1	6.8	16
	2		
	3		
	4	6.9	16
	5	7	18
	6	6.7	16
	7	6.9	16
	8	6.9	16
	9		
	10		
	11	6.5	15
	12	7	15
	13	7.4	14
	14	7.5	14
	15	7.2	13
	16		
	17		
	18	7.9	14
	19	7.7	14
	20	7.3	14
	21	7.6	13
	22	7.4	13
	23		
	24		
	25	7.3	12
	26	7.1	12
	27		
	28		
	29		

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
13-Nov	30		
13-Dec	1		
	2	7.5	9
	3	7.8	10
	4	7.4	13
	5	7.6	12
	6	7.5	12
	7		
	8		
	9		
	10		
	11	7.4	11
	12	8	10
	13	7.5	10
	14		
	15		
	16	7.5	9
	17	7.7	9
	18	7.6	10
	19	7.4	10
	20	7.3	10
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
14-Jan	1		
	2	7.9	9
	3		
	4		
	5		
	6	7.2	8
	7	7.9	8
	8	7	8
	9	8.3	8
	10	7.8	8
	11		
	12		
	13	7.9	8
	14	7.7	9
	15	7.8	8
	16	7.3	8
	17	7.2	8
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		

Month	Day	pH	temperature
14-Jan	27	7.9	6
	28	7.7	5
	29		
	30	7.6	4
	31	7.5	4
14-Feb	1		
	2		
	3	7.3	6
	4	7.9	7
	5	8.1	9
	6	7.9	9
	7	7.7	9
	8		
	9		
	10	7.4	8
	11	8.3	8
	12	8.4	9
	13		
	14		
	15		
	16		
	17	7.6	8
	18	8.1	9
	19	7.6	8
	20	7.9	8
	21	7.7	8
	22		
	23		
	24	7.7	9
	25	7.9	9
	26	7.8	9
	27	8.1	10
	28	7.8	10
14-Mar	1		
	2		
	3		
	4		
	5		
	6	7.2	7
	7	7.1	7
	8		
	9		
	10	7.1	9
	11	7.4	9
	12	7.5	10
	13	7.7	10
	14	7.5	10
	15		
	16		
	17		
	18	8.1	7
	19	7	9
	20	76.9	8
	21	7	8
	22		
	23		
	24	6.8	6
	25	7	8

Month	Day	pH	temperature
14-Mar	26	7.4	10
	27	7.1	10
	28	7.1	10
	29		
	30		
	31		
14-Apr	1		
	2		
	3		
	4		
	5		
	6		
	7	6.5	9
	8	7.2	11
	9	7.4	12
	10	7.1	13
	11	7	13
	12		
	13		
	14	7.9	13
	15	6.9	13
	16	7	12
	17	7.4	13
	18	7.3	13
	19		
	20		
	21	7.1	13
	22	7.3	13
	23	7.3	15
	24	7.1	15
	25	7.1	15
	26		
	27		
	28	7.6	13
	29	8	15
	30	7.2	13
14-May	1	7.6	14
	2	7.4	14
	3		
	4		
	5	7.5	14
	6	7	16
	7	7.3	16
	8	7.4	17
	9	7.3	17
	10		
	11		
	12	7.4	17
	13	7.2	19
	14	6.9	19
	15	7.1	19
	16	7.1	19
	17		
	18		
	19	6.8	18
	20	6.9	18
	21	6.7	19
	22	6.9	20

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
14-May	23	6.9	20
	24		
	25		
	26		
	27	7.2	19
	28	6.7	21
	29	7.3	20
	30	7.2	20
	31		
14-Jun	1		
	2	7.3	19
	3	7.1	20
	4	7.2	21
	5	6.9	21
	6	7	21
	7		
	8		
	9	7.5	20
	10	7.2	21
	11	7.3	22
	12	7.2	22
	13	7.1	22
	14		
	15		
	16	7	20
	17		
	18		
	19	7.9	22
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
14-Jul	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		

Month	Day	pH	temperature
14-Jul	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
14-Aug	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		
14-Sep	1		
	2	7.2	23
	3	7.4	24
	4	7.1	24
	5	7.5	24
	6		
	7		
	8	6.5	24
	9	6.9	23
	10	6.8	23
	11	6.2	23
	12	6.8	23
	13		
	14		
	15	7.1	22

Month	Day	pH	temperature
	16	7.2	22
	17	6.2	22
	18	6.8	22
	19	6.9	22
	20		
	21		
	22	7.3	22
	23	6.6	21
	24	7.4	21
	25	6.44	21
	26	7.1	21
	27		
	28		
	29	7.5	21
	30	6.3	21
14-Oct	1	6.3	21
	2	6.6	21
	3	7.3	21
	4		
	5		
	6	7.4	20
	7	7.2	20
	8	7.1	20
	9	7.1	20
	10	6.9	20
	11		
	12		
	13	7.2	19
	14	6.8	19
	15	6.3	19
	16	6.1	20
	17	6.2	19
	18		
	19		
	20	6.4	18
	21	6.6	18
	22	6.1	17
	23	7.5	18
	24	7.3	18
	25		
	26		
	27	7.3	17
	28	7	17
	29	7.2	18
	30	7.2	18
	31	6.9	17
14-Nov	1		
	2		
	3	6.9	15
	4	6	16
	5	6.6	16
	6	7.9	17
	7	8.1	15
	8		
	9		
	10	8.3	15
	11	7.3	15
	12	6.7	16

Unionville Elementary School Wastewater Treatment Plant
pH and Temperature Data August 2010 through December 2014

Month	Day	pH	temperature
14-Nov	13	6.6	16
	14	6.7	16
	15		
	16		
	17	8	13
	18	7	14
	19	6.9	13
	20	7.1	13
	21	7.6	13
	22		
	23		
	24	7.4	13
	25	7.4	14
	26		
	27		
	28		
	29		
	30		
14-Dec	1	7.5	13
	2	7.2	12
	3	7.3	13
	4	7	13
	5	7.2	13
	6		
	7		
	8	7.9	12
	9	7.6	12
	10	7.2	12
	11	7.4	12
	12	7.9	12
	13		
	14		
	15	7.6	11
	16	8.5	12
	17	7.3	11
	18	8.5	12
	19	7.6	12
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		

90th Percentile pH = 7.9 SU

90th Percentile Temperature = 21° C

Analysis of the UNIONVI. 3 ELEMENTARY SCHOOL STP e: uent data for AMMONIA
Averaging period for standard = 30 days

The statistics for AMMONIA are:

Number of values	= 1
Quantification level	= .2
Number < quantification	= 0
Expected value	= 10
Variance	= 36.00001
C.V.	= .6
97th percentile	= 24.33418
Statistics used	= Reasonable potential assumptions - Type 2 data

The WLAs for AMMONIA are:

Acute WLA	= 6.64
Chronic WLA	= ----
Human Health WLA	= ----

Limits are based on acute toxicity and 1 samples/month, 1 samples/week

Maximum daily limit	= 6.64
Average weekly limit	= 6.639999
Average monthly limit	= 6.639999

Note: The maximum daily limit applies to industrial dischargers
The average weekly limit applies to POTWs
The average monthly limit applies to both.

The Data are
10

6/24/99 ammonia calculation

2/11/2015 3:24:31 PM

Facility = Unionville Elementary School WWTP

Chemical = Ammonia

Chronic averaging period = 30

WLAa = 10.1

WLAc =

Q.L. = .2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 10.1

Average Weekly limit = 10.1

Average Monthly Limit = 10.1

The data are:

6/23/2009 2:02:03 PM

Facility = Unionville Elementary School
Chemical = Total Residual Chlorine
Chronic averaging period = 4
WLAa = 19
WLAc = 11
Q.L. = 100
samples/mo. = 30
samples/wk. = 8

Summary of Statistics:

observations = 1
Expected Value = 200
Variance = 14400
C.V. = 0.6
97th percentile daily values = 486.683
97th percentile 4 day average = 332.758
97th percentile 30 day average = 241.210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 16.0883226245855
Average Weekly limit = 9.59676626920107
Average Monthly Limit = 7.9737131838758

The data are:

200

Units of measurement are in ug/L.

Unionville Elementary School
NPDES - SAA

Location: Located on Route 522, approximately .3 mile south of the intersection of Route 522 with S.R. 20

Quads Used: Unionville
Lahore

Critical Discharge: .021 cfs/ sq. mi. (North Anna River Near Doswell)

D.A. of Riga Run above confluence with the receiving tributary - 1.25 sq. mi.

$$\text{Flow} = \frac{1.25 \text{ sq. mi.} \times .021 \text{ cfs/ sq. mi.}}{1.55 \text{ MGD}} = .0169 \text{ MGD}$$

D.A. of receiving waters = .59 sq. mi.

$$\text{Stretch flow} = \frac{.59 \text{ sq. mi.} \times .021 \text{ cfs/sq. mi.}}{1.55 \text{ MGD}} = .0079 \text{ MGD}$$

Unionville Elementary School
NPDES - SAA

(1)

$BOD_u = 31$
 $DO = 6$
 $Q = .00475$

$x = .7 \text{ mi}$
 $V = .2 \text{ ft/sec}$
 $t = .2134 \text{ days}$

$BOD_u = 29.1024$
 $DO = 4.5335$
 $Q = .00475$

Deficit = 3.0665

Unionville E.S.
(24 mg/l)
 $K_{a30} = .8540$
 $K_{d30} = .2960$
 $D_a = 1.6$
 $t_c = 1.7154$
 $D_c = 6.4666$

$BOD_u = 3$
 $DO = 6.5$
 $Q = .0079$
Stretch slow (of
unnamed tributary)

$BOD_u = 12.8013$
 $DO = 5.7603$
 $Q = .01265$

$BOD_u = 3$
 $DO = 6.5$
 $Q = .0170$
Riga Run

$BOD_u = 7.1938$
 $DO = 6.1949$
 $Q = .0296$

$D_a = 1.4051$
 $D_c = 1.4166$
 $t_c = .3079$
 $K_{d30} = .1776$

$$\begin{aligned} x &= 1.5257 \\ v &= .3 \\ t &= .3079 \end{aligned}$$

$$BOD_u = 6.8110$$

$$DO = 6.1834$$

$$C_1 = .0296$$

$$D_c = 1.4166$$

t_c = mixing point

stretch

Stream standards are met with the
present effluent BOD, of 24 mg/l.

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Orange County, Virginia.

PUBLIC COMMENT PERIOD: March 27, 2015 to April 27, 2015

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS AND PERMIT NUMBER: Orange County School Board, 200 Dailey Drive, Orange, VA 22960, VA0060330

NAME AND ADDRESS OF FACILITY: Unionville Elementary School Wastewater Treatment Plant, 10285 Zachary Taylor Highway, Unionville, VA 22567

PROJECT DESCRIPTION: Orange County School Board has applied for a reissuance of a permit for the public Unionville Elementary School Wastewater Treatment Plant. The applicant proposes to release treated sewage wastewaters from a public school at a rate of 0.0047 million gallons per day into a water body. The sludge will be disposed by transporting it to Massaponax Wastewater Treatment Plant (VA0025658) for final disposal. The facility proposes to release the treated sewage in the Riga Run, UT in Orange County in the York River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: pH, BOD, Total Residual Chlorine, Total Suspended Solids, Ammonia, E. coli, and Dissolved Oxygen. The permit requires monitoring for Total Nitrogen, TKN, Nitrate+Nitrite and Total Phosphorus.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

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